

REMARKS

Claims 12-32 are pending in this Application.

Claims 12-32 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Mahulikar et al (U.S. Patent No. 5,608,267 – hereinafter Mahulikar).

Claims 12, 14 and 16, independent, each requires, *inter alia*, “wherein a coating layer made of a hard carbon film is provided on at least a surface of the base member...” The Office Action asserts that Mahulikar discloses a coating layer 42 made of a **hard carbon film**. However, the coating layer 42 of Mahulikar is an anodization or an oxidation layer (col. 4, lines 47-48). Anodization is an electrolytic passivation process used to increase the thickness and density of the natural oxide layer on the surface of metal. The coating layer 42 of Mahulikar formed by anodization is an oxide film (col. 7, lines 57-65). Mahulikar is *completely silent* on a coating layer made of a hard carbon film as required by claims 12, 14, and 16.

According to the claimed subject matter per claims 12, 14, and 16, a hard carbon film is provided as a coating layer to the surface of the base member of the alloys or composites. Thereby as taught in the instant specification, the resin bonding strength between the resin and the base member is increased for a semiconductor device (*see, e.g.,* pg. 8, lines 6-15, *emphasis on lines 6-10*, and Table I). However, Mahulikar does not disclose or suggest this, and apparently is unaware of the unexpected improvement in resin bonding strength of the hard carbon film provided by the claimed semiconductor device.

Thus, Mahulikar fails to disclose or suggest, at a minimum, “...a coating layer made of a **hard carbon film**,” as recited in independent claims 12, 14, and 16.

With respect to independent claim 12, the Office Action asserts that Mahulikar discloses a semiconductor device 12 having a base member 26’ made of an alloy or composite mainly

composed of Cu and W and/or Mo. Mahulikar discusses a base member 26' made of an alloy which is aluminum (col. 8, lines 50-51), nickel plated copper (col. 1, lines 58-60), or a copper or a copper alloy (col. 3, lines 65-67). Mahulikar is silent on forming a copper alloy that is a Cu-W or Cu-Mo alloy as required by independent claim 12. However, Mahulikar fails to disclose or suggest, "...a semiconductor device comprising a base member made of an alloy or composite mainly composed of Cu and W and/or Mo," as required by claim 12.

With respect to independent claim 16, the Office Action asserts that Mahulikar discloses a member for a semiconductor device 12 having a base member 26' made of an alloy or composite mainly composed of Si--SiC. Mahulikar describes the base member 26' including aluminum or aluminum alloy based composites such as aluminum-silicon carbide and aluminum based compounds such as aluminum nitride (col. 10, lines 16-22). Mahulikar is silent on forming an alloy or composite mainly composed of Si--SiC. Mahulikar fails to disclose or suggest, "...a semiconductor device comprising a base member made of an alloy or composite mainly composed of Si--SiC," as recited in claim 16.

The Office Action does not address dependent claims 13, 15, and 17-32. Dependent claim 21, for example, recites, "...wherein the surface of the base member on which the coating layer is formed has a surface roughness of 0.1 to 20 μm in Rmax." Mahulikar fails to teach or suggest the described subject matter.

As anticipation under 35 U.S.C. § 102 requires that each and every element of the claim be disclosed, either expressly or inherently (noting that "inherency may not be established by probabilities or possibilities," *Scaltech Inc. v. Retec/Tetra*, 178 F.3d 1378 (Fed. Cir. 1999)), in a single prior art reference, *Akzo N.V. v. U.S. Int'l Trade Commission*, 808 F.2d 1471 (Fed. Cir.

1986), based on the forgoing, it is submitted that Mahulikar does not anticipate independent claims 12, 14, and 16, nor any claim dependent thereon.

Conclusion

In view of the above remarks, Applicants submit that this application should be allowed and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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